TRAFFIC DIGEST

A Review of Current Literature
on
Street and Highway Traffic.

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75 - CONTROL DEVICES AND METHODS - Signs

"Road Signs Unheeded" - E. L. Yordan (New York Times, August 8, 1937, page 7XX)

Large numbers of drivers disobey certain road signs, and this number is spreading because of the multiplicity of signs and increased vehicular movement and because in most cases patrol forces are inadequate. Disregard of roadside injunctions is more than flouting the law; it causes accidents.

The National Bureau of Casualty and Surety Underwriters reports that at a certain intersection controlled by a stop sign:

	Stopped	Practically stopped	Entered slowly	Entered fast
Day	50.2%	39%	9%	1.8%
Night	51.2	39.7	7.7	1.4

Of pedestrians injured, 11% are struck while crossing against red light; green light observance is rated 60%, red 34%, amber 5.5%.

One way street signs are seldom wilfully disobeyed. Slow or caution signs are not respected by drivers.

At a certain crossing of two highways slow signs were failures, as was a flashing beacon and later stop signs. A traffic-actuated signal reduced accidents by 90%. Excessive use of "Boulevard Stop" signs results in disobedience of these. But elimination of signs may for a time result in accidents. The remedy for disobedience of signs might be larger signs or police enforcement.

76 - CONTROL DEVICES AND METHODS - Signals

"State Highway Departments as a Factor in Signalization" - Staff Article (American City, September, 1937, page 117)

This article gives a summary of traffic signal information from all but ten states. The items covered are: Purchased only by state; maintained only by state; purchased and maintained by state, by municipalities; planned by state in next two years major, secondary; total new signalized intersections needed; are municipal signals approved by state?

77 - PARKING - Parking Meters

"Eighteen Months of Intelligent Parking-Meter Operation" - C. G. Beckenbach (American City, September, 1937, pp. 60-61)

The policy of installing parking meters conservatively in Dallas, has apparently been successful. The first thousand were installed in November, 1935. This installation precipitated a demand from fringe districts which has been partially met by installing another five hundred. Proof of approval comes from an investigation made by outside persons that shows only four unfavorable replies to 1000 inquiries. Since the original installation the meters have been improved so as to decrease the amount of maintenance.

Tables accompanying the article give information on revenue and observance. Monthly collections range from $12,500 to $13,750. Some of the money has been used for traffic improvements, such as rebuilding signal systems, increase in street line, painting and increase in personnel of the traffic division.

78 - REGULATIONS AND LAWS - Ordinances, Municipal

"At the Wheel" - Reginald M. Cleveland (New York Times, August 22, 1937, page 6XX)

Thomas P. Henry, A. A. A. president, said "many sections of our highways today look to the night driver as if a lunatic has scrambled a rainbow into a million fragments and attached them to perpetual motion". The A. A. A. committee of roadside development and control is framing model legislation dealing with the problem of advertising sign glare and flashing.

79 - REGULATIONS AND LAWS - State

"Bill Boards Under Fire" - Frederick Graham (New York Times, August 15, 1937, page 4XX)

The case against unrestricted billboards has been summed by Meade C. Dobson of the Long Island Association. "The road, built at the expense of the motorist and the general taxpayer, is the 'circulation department' of the billboard business. By distracting the motorist or by obscuring his vision at underpasses, grade crossings, abrupt hill crests, on curves, or by dwarfing traffic markers, the bill board is held to be a definite menace to the motorist". The natural beauty of the country is spoiled.

Taxes varying from 25 cents a sign in parts of California to a four dollar tax and a fifty foot setback in Massachusetts have not been widely applied in other states. Zoning of signs for set back under state control is another plan. Pure restriction, as in Long Island, is most difficult and may give way to zoning.

80 - SAFETY ACTIVITIES - Education

"Drivers Go To School" - E. L. Yordan (New York Times, September 19, 1937, page 7XX)

Since the Summer of 1936, when twenty-nine teachers took a course in "traffic safety and automobile operation" at Pennsylvania State College - the first such course for teachers to include classroom instruction and practical road work in driving - the movement for scientific training of automobile operators has gained rapidly. As a result of the spread of such

education great improvement is expected in the nation's driving habits, not only from an increased number of highly trained men and women at the wheel, but from the example and the standard these will set for other drivers. This, in turn, should have a favorable effect on the highway accident situation.

During the present season twelve colleges and four Indian Service schools in their current sessions are offering training courses in driving for teachers, who will then give this instruction in their colleges and high schools. All are following a program developed by educators cooperating with the American Automobile Association and are assisted by Professor Amos E. Neyhart, who is directing the association's driver training activities.

Altogether 320 teachers were trained in the A.A.A. - Neyhart method this summer. 3,500 high schools now offer driver education and about 500,000 students were reached during the last school year.

The Neyhart driver-training system has been incorporated into a program of developing sound driving habits by constant repetition of the correct technique until its use becomes automatic.

Classroom instruction and discussion based on "sportsmanlike driving" textbooks, as well as laboratory practice, precede road training. The course includes, first, a study of the mental, physical and emotional characteristics of drivers as they affect car operation; second, knowledge of the car and its mechanical parts; third, skill in handling the car, and fourth, special habits and attitudes of safe behavior on the highway. An array of teaching aids and special projects forms a complement to the pictures, charts and blackboard demonstrations, study of pedestrian habits, panel discussions, writing of essays and preparation of posters, visits to traffic courts, motor vehicle departments and police bureaus for traffic violators.

81 - SAFETY ACTIVITIES - Education

"At The Wheel" - Reginald M. Cleveland (New York Times, September 19, 1937, page 7XX)

Two books have recently appeared which should make contributions toward safety on the highway. One is "Youth at the Wheel," by John J. Floherty; the other, "Drive and Live," by James A. Fitzgerald, Carl A. Hoffman and John R. Bayston, working in collaboration. Mr. Floherty's little volume, which is excellently illustrated with photographs and photographic diagrams, is doubly effective because it avoids all attitude of preaching. It assumes not merely that young people will drive but that they can drive well and want to do so. Thus it disarms at the outset any resentment which might be felt at admonitions from an older generation. The spirit of the book is well summed up in the introduction in which the author says:

"The safety of tomorrow is in the hands of the boys and girls of today. In that lies the brightest outlook for the future. Unlike their elders, they shall take the wheel with a knowledge and an understanding of the vehicle they drive."

In succeeding pages the mechanism of the car, the hazards of the road and street, and safe and unsafe practices of driving are made very clear.

In "Drive and Live" Dr. Fitzgerald, who is Associate Professor of Education at Loyola University; Mr. Hoffman, head of the Machine Shop Department of the Lane Technical High School, Chicago, and Mr. Bayston, instructor at the Washburne Trade School in that city, have treated the subject very fully. They take up the attitude of drivers, the education of the

driver, the care of the car, roads and many other aspects of the safe-driving problem. Their book, suitable as a textbook, gains value from good illustrations and suggested study aids and classroom discussions.

82 - STREETS AND HIGHWAYS - Divided Highways

"Divided Highway Safer" - E. L. Yordan (New York Times, September 12, 1937, page 4XX)

While at first the safety center strip was advocated only for heavily traveled express highways, it is now favored for all routes on which traffic is fast or where more than two lanes are required to carry it. Both the United States Bureau of Public Roads and the American Association of State Highway Officials have given official backing to the divided highway under such circumstances.

Three major advantages are claimed for divided highways. First and foremost, they virtually eliminate the possibility of head-on collisions; second, they simplify the handling of cross-traffic at intersections, and, third, they permit sharper banking of curves without fear that slow-moving vehicles will slide down into the path of on-coming vehicles.

"Before and after" studies on three divided highways made by Arnold H. Vey, State Traffic Engineer of New Jersey, showed a 100 per cent reduction of fatal accidents on two routes and a 50 per cent reduction on a third route after they had been improved by insertion of a center barrier. Mr. Vey is of the opinion that a one-third reduction in accidents of all types may be permanently expected on divided highways over undivided ones.

Effect on Accidents

While having a very favorable effect on serious accidents, including those resulting from headlight glare, the divisional strip in some cases has brought about an increase in rear-end smashes by preventing motorists from swinging out to the left if they cannot stop in time. These mishaps, however, are seldom serious.

The divided highway tends greatly to reduce both the danger and fatigue of night driving. Where the dividing island is wide enough, the annoyance from approaching headlights is greatly lessened. And, regardless of the width of the separating strip, motorists are safeguarded from crossing one another's paths should they become temporarily blinded by glare.

83 - STREETS AND HIGHWAYS - General

"The Trend of Modern Highways" - Thos. H. MacDonald, Chief, U. S. Bureau of Public Roads (Roads and Streets, August, 1937, pp. 40-42)

The factors determining the trend are obsolescence resulting from changes in the number and speed of motor vehicles, the increasing revenue from motor vehicle taxation. On the other hand, diversions and the spread of funds over a greater mileage create a growing financial dilemma in many states. Highway safety has become a national emergency.

The state-wide planning surveys being carried on cooperatively in 44 states and the Territory of Hawaii will furnish factual data for future plans.

Scientific planning is the most characteristic trend. Highways will be classified and designed accordingly. Soil stabilization is one important development. Grade crossing elimination has become a fixed policy.

The German system of super-highways points the way, but we may conclude that superhighways will be developed only in the vicinity of our large cities.

The power of highway improvement to accelerate the shift of population from potentially low productive areas will be consciously used in national policies.

84 - STREETS AND HIGHWAYS - General

"France Aids the Tourist" - George M. Mathieu (New York Times, September 12, 1937, page 9XX)

American and foreign motorists in France this year have found greatly improved and modernized highways. Important and heavily traveled routes have been widened, realigned, and curves banked to increase the safety of roads.

As a further attraction to motoring tourists the highest automobile highway in Europe was opened to traffic by President Albert Lebrun on July 10. Known as l'Iseran Pass Road, it is located in Savoy, France, a short distance from the Italian border, and is the completing link of the famous "Route des Alps." It is near the passes of Saint Bernard and Mont Cenis, and provides a shorter driving distance between Lake Geneva and the Mediterranean Sea.

In Lyons a by-pass boulevard is being built to accommodate three vehicles in each direction with a wide grass strip in the center. An experimental street pavement consisting of metal hexagonal blocks has also been built in the city of Lyons. They have been found to be durable but slippery for horse-drawn vehicles when wet.

85 - STREETS AND HIGHWAYS - Lighting

"What About Highway Lighting?" - S. G. Hibben, Westinghouse Electric & Mfg. Co. (Engineering News-Record, August 5, 1937, pp. 217-220)

Night lighting lies directly ahead of public roads officials. It is full of problems. In the U. S. fewer than 2000 sodium-vapor units are in service. These are on stretches of road which with 3 or 4 exceptions are less than a mile long. There are practically no mercury-vapor installations although in England there are no fewer than 30,000 mercury lamps on 1000 miles of highway.

We know how to install good lighting for highways. The best sources are probably the 10,000-lumen sodium-vapor lamp supplemented by the 6,000-lumen similar unit.

Probably the most important 20,000 miles of highway should be lighted immediately. Improved automobile headlights will help, but will not solve the problem.

Highway lighting costs about 5 to 8 per cent of the cost of constructing the roadway. The motorists should pay the cost of the lighting. Probably 10 per cent of the gas tax (in areas effected) would pay for the lighting.

It is possible to save 5,500 lives annually with good lighting, a saving of $50,000,000. Experiments have proved that lighting will cut accidents.

Highway lighting will likely reduce other traffic expenditures. Traffic capacity will be increased. It should reduce insurance rates; it may reduce rural electrical rates by extending distribution lines.

86 - STREETS AND HIGHWAYS - Lighting

"Roads that Have Been Lighted" - R. M. Swetland and T. W. Dana, Illuminating Engineering Laboratory, General Electric Co., Schenectady, N.Y. (Engineering News-Record, August 19, 1937, pp. 312-315)

The types of lighted road that may be observed can be broadly classified as straight away two-lane paved roads, roads wider than two lanes, city entrance roads, traffic circles, long bridge roads, and multiple intersections.

Balltown Road, near Schenectady, represents a highway of normal two-lane construction and traffic. It is lighted with incandescent luminaires. The lights are located on one side of the road and are always on the outside of curves.

The five-lane Schenectady-Albany Highway represents an admirable location for sodium luminaires. Pauling Avenue, Troy, N. Y., offers an excellent example of the lighting of a main urban entrance. Incandescent luminaires, with 6000-lumen lamps are used. Lathams Corners Traffic Circle, near Troy, represents a most difficult lighting problem. Sodium luminaires with 6000-lumen lamps were installed. The shielding characteristics of this type avoid objectionable glare. All direction signs are clearly visible. The San Francisco Bay Bridge is a notable example of bridge lighting.

Marlboro, Conn., intersection makes effective use of the sodium lamp, being illuminated with 12 sodium luminaires with 10,000-lumen lamps. The yellow color acts as a caution signal.

87 - STREETS AND HIGHWAYS - Lighting

"Road Lighting for Seeing" - L. A. S. Wood, Chief Lighting Engineer, Westinghouse Electric and Mfg. Co. (Engineering News-Record, September 23, 1937, pp. 516-520)

A well-considered technique of highway lighting now exists. The results of invention and experiment have been coordinated by illuminating engineers to produce a code of practice. The main consideration in modern highway lighting is to provide effective visibility for the automobile driver.

Objects are seen at night by either of two entirely different processes: The object may be illuminated with sufficient brightness that every detail is observed (discernment by surface detail), or the object may be discerned as an outline contrasting with the pavement beyond, which, under a system of fixed lights, is generally brighter than the object observed, (discernment by silhouette).

Discernment by surface detail and discernment by silhouette are, to a considerable degree, mutually opposed. More light on the object provides better discernment by surface detail and poorer discernment by silhouette because the brighter the object, the less it contrasts with the background. Conversely, more light on the background and less on the object provides better discernment by silhouette and poorer discernment by surface detail.

Visibility by Headlights - Objects on or immediately adjacent to the highway are seen at night in the illumination of automobile headlamps "by the light reflected from the objects toward the automobile driver. They are visible in proportion as light reflection from their surfaces is good or they may be visible because they are naturally darker or lighter than the more distant pavement as lighted by the headlamp beams. When seen against the pavement illuminated by approaching headlamps, they appear as silhouettes."

When the pavement is light in color and the road surface is dry, headlamps provide safe and pleasant night driving conditions at moderate speeds except for the glare of approaching automobile headlights. When the pavement is wet, on the other hand, instead of diffusely reflecting the light (like blotting paper), it reflects the light specularly (like a mirror) with the result that the headlamp beams are reflected in a direction away from the driver's eye leaving the pavement absolutely black. In this case, objects are seen only by the light reflected from them toward the driver; and since such objects are predominantly dark in color, their visibility is low. On dark, dry pavements also, predominantly dark objects are seen only by the light which they reflect back to the driver's eye.

Visibility by Fixed Lighting - At the relatively low levels of illumination economically possible with highway lighting, discernment by silhouette is recognized as the best method of producing effective night visibility. The problem, therefore, is to provide a maximum of surface brightness for the automobile driver against which objects may be seen in silhouette and so that the pavement surface shall appear bright to the motorist, it is important that much of the reflection of light from it shall be toward the driver. An adequate and effective highway lighting system should produce this surface brightness under all changes in road surface conditions. The ideal to aim at is uniform surface brightness, although in practice, it is relatively unimportant that this brightness should be uniform.

Luminaire Placement - Pavements when dry are predominantly diffuse; when wet, they are predominantly specular. In the design of an overall highway lighting system, these two entirely different conditions require a common solution. Fortunately, the system which will produce adequate surface brightness for the motorist on a wet pavement, will also provide effective visibility on a dry pavement.

In order that the pavement surface shall appear bright, it is important that much of the direct reflection of light from it shall be in the direction of the motorist. On specular pavement with lamps placed at the side of the highway, such direct reflection is largely transverse and the --- pavement does not appear very bright to the motorist... It is, therefore, important that the light sources shall be mounted well out over the pavement at a minimum distance of 5 ft. in from the curb and preferably more. It is advantageous to mount luminaires on the outside of highway curves and at the crest of hills and grades. The planned spacing should be adapted to locate luminaires at these and other critical points.

For two-lane highways, it is satisfactory to locate the luminaires on one side of the highway. For three- or four-lane highways, the luminaires should be located on both sides of the roadway in staggered arrangement. Highways with islands or parkways separating opposite-bound traffic should be regarded as two separate highways and treated accordingly.

It should be noted that highway luminaires are designed for definite spacing-mounting-height ratios and that these limits should not be exceeded. The importance of locating the luminaires over the pavement and

the adherence to the definite spacing-mounting-height ratios, justifies the installation of special poles to support luminaires in their correct locations.

88 - STREETS AND HIGHWAYS - Street Design

"Streets of Tomorrow" - S. Johanneson (Engineering News-Record, September 30, 1937, pp. 554-556)

The main streets of most cities were laid out when the present development of vehicle traffic could not have been imagined, and for that reason they are now congested with traffic and will be entirely inadequate in the near future unless radical improvements are made.

To make room for these improvements, it will rarely be possible to demolish large parts of the buildings of the city; other means, therefore, must be attempted. The author considers how traffic routes should be arranged in a city not yet built and then discusses how an existing city can attempt to apply some of the ideals, at least in a modified form, for the purpose of improving the conditions of traffic.

An Ideal System

Within the business district this ideal city may be of the usual block pattern with two systems of parallel streets running at right angles to each other. The streets will be at least 100 ft. wide, and the corners of the city blocks will be rounded for easy turns at intersecting streets. The roadway will occupy almost the full width of the street, and the sidewalks will be at the second story level of the buildings. Paralleling the streets, but on separate rights-of-way through the middle of the blocks and about one-half mile apart, viaducts will carry the through traffic without interference with the local traffic, and ramps will connect the viaducts with the surface streets. The street level of the viaducts will be used for parking cars, and the subsurface level for rapid transit passenger subways. Loading and unloading of trucks will be arranged for at places outside of the street area, and all streets will carry one-way traffic only, unless they have a divided roadway. In residential districts the main highways will be carried through as in the open country. The local highways for vehicle traffic will be separated from the pedestrian walks, and the two classes of traffic will have no grade crossings.

89 - STREETS AND HIGHWAYS - Lighting

"At the Wheel" - Reginald M. Cleveland (New York Times, August 8, 1937, page 7XX)

From figures of the States of New Jersey, Oregon, New York, North Carolina, and Pennsylvania, the National Resources Committee observes that highway fatalities are about the same in winter and summer except that in winter evenings the fatalities are 58% higher than in summer when it is still daylight, despite less traffic. Proper lighting would reduce night fatalities by 47%. R. E. Simpson's study in 60 cities on streets carrying 1,500 vehicles per hour shows, for several grades of lighting:

Lumens per foot	Ratio accidents night to day
80, up	8 to 1
40 to 80	12
25 to 40	21
Less than 25	47